Genetta maculata – Rusty-spotted Genet

Joe Grosel

Regional Red List status (2016)	Least Concern
National Red List status (2004)	Least Concern (but assessed with *G. tigrina*)
Reasons for change	No change
Global Red List status (2016)	Least Concern
TOPS listing (NEMBA) (2007)	None
CITES listing	None
Endemic	No

The Rusty-spotted Genet was previously considered conspecific with the Cape Genet, and both were regrouped under the name "Large-spotted Genet". Morphometric and molecular analyses suggest that *G. maculata* is probably a species complex, although it is likely that only one of such possible species is present in the assessment region.

Taxonomy

Genetta maculata (Gray 1830)

ANIMALIA - CHORDATA - MAMMALIA - CARNIVORA - VIVERRIDAE - *Genetta* - *maculata*

Synonyms: *aequatorialis* Heuglin 1866; *albiventris* Roberts 1932; *deorum* Funaioli and Simonetta 1960; *erlangeri* Matschie 1902; *fieldiana* Du Chaillu 1860; *gleimi* Matschie 1902; *insularis* Cabrera 1921; *matschiei* Neumann 1902; *pumila* Hollister 1916; *schraderi* Matschie 1902; *soror* Schwarz 1929; *stuhlmanni* Matschie 1902; *zambesiana* Matschie 1902

Common names: Rusty-spotted Genet, Blotched Genet, Central African Large-spotted Genet, Large-spotted Genet (English), Grootkolmuskeljaatkat (Afrikaans), Insimba (Ndebele, Swati, Zulu), Thsipa-thoko (Sepedi), Thsipa, T'sipa, Tsipa e Matheba a Maholo (Sesotho), Thokolo (Tswana), Msimba-mangovo, Nsimba (Tsonga), Tshipathokolo, Tsimba (Venda), Inyhwagi (Xhosa)

Taxonomic status: Species complex (but probably only one species in the assessment region).

Taxonomic notes: Previously considered part of *Genetta tigrina*. The species epithet "*maculata*" is no longer valid according to the International Commission on Zoological Nomenclature, and thus should only be used as a provisional naming (ICZN 2007). *Genetta* "*maculata*" is part of the large-spotted genet complex, also including *G. pardina* (western Africa), *G. tigrina* (South Africa) and other forest forms with uncertain taxonomic status (Gaubert 2003). For discussion on the complex taxonomic history of this taxon see Gaubert (2003), Gaubert et al. (2005a,b), Wozencraft (2005) and Angelici and Gaubert (2013). Through a naked eye, Rusty-spotted Genet differs from Cape Genet by the presence of rusty spots and the absence of "black socks" on both the front and hind legs (Photo 1). In addition, it does not possess a mid-dorsal crest (i.e. longer hairs along the spine), and it has shorter tail hairs (2–3 cm vs 4–4.5 cm) than the Cape Genet, but these differences cannot always be recognised during fleeting encounters in the field or even on pictures. Although both species present additional morphological and genetic differences, further molecular studies are required to solve the taxonomic status of *G. maculata* relative to *G. tigrina*; and to establish how many species are in fact present in the *G. maculata* complex.

Assessment Rationale

The Rusty-spotted Genet is listed as Least Concern as, although it is possible that this species may be undergoing some localised declines in a few areas due to road collisions, direct or accidental persecution by farmers, hunting for skins, meat and trophies, and predation by feral/domestic cats and dogs, it has a wide distribution range, occurring in a variety of habitats, and it is present in many protected areas within the assessment region.

Regional population effects: This species' range within the assessment region is continuous with the rest of its African range, and we suspect that there is dispersal across regional boundaries.

Photo 1. The Rusty-spotted Genet (*Genetta maculata*) does not have "black socks" like the Cape Genet (*Genetta tigrina*). The spots, dorsal band and dark tail rings are noticeably rusty (Ryan Tippett).

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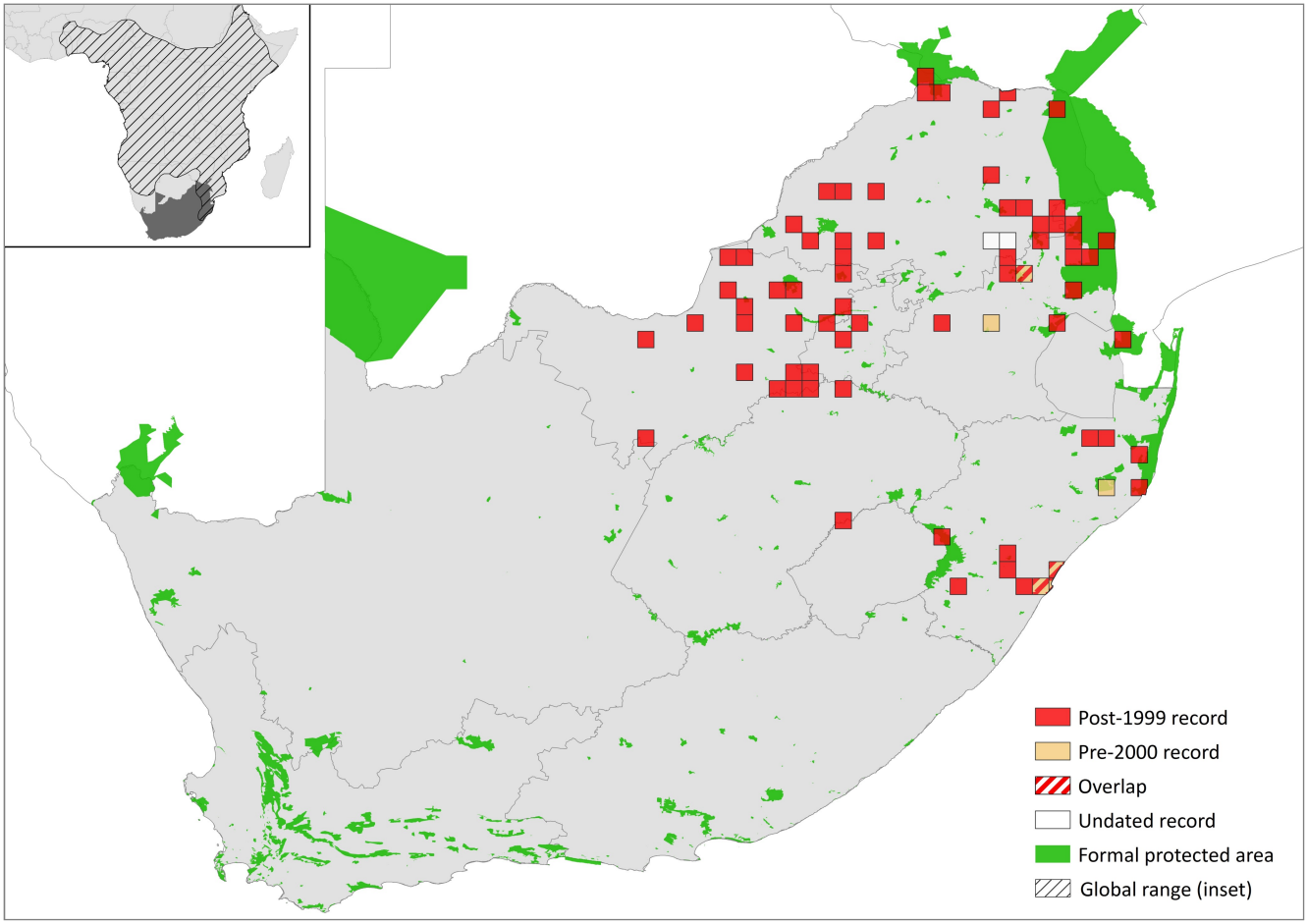

Figure 1. Distribution records for Rusty-spotted Genet (*Genetta maculata*) within the assessment region

Table 1. Countries of occurrence within southern Africa

Country	Presence	Origin
Botswana	Extant	Native
Lesotho	Possibly extant	-
Mozambique	Extant	Native
Namibia	Extant	Native
South Africa	Extant	Native
Swaziland	Extant	Native
Zimbabwe	Extant	Native

Distribution

This species is widely distributed in sub-Saharan Africa, ranging from east of the Volta River (Ghana) to east of Eritrea and Somalia (its presence in Djibouti is uncertain) and southwards to central Namibia and KwaZulu-Natal Province in South Africa (Angelici & Gaubert 2013). It occurs to high elevations, up to 3,400 m in the Simien Mountains of Ethiopia (Yalden et al. 1996). As recently argued by Hoffmann et al. (2015), it is unlikely that this species is present on Bioko Island, Equatorial Guinea.

Within the assessment region, this species occurs across Limpopo, eastern Mpumalanga, Swaziland, KwaZulu-Natal (up to Durban), as well as Gauteng and North West provinces (mostly in the west). The species seems to be largely absent from the Free State Province (Figure 1). It has not been recorded in Lesotho, but extra-limital records (see Figure 1) suggest that it might be present.

The Rusty-spotted Genet is considered sympatric with at least two other genet species (*G. tigrina* and *G. genetta*), and this may result in a hybridisation zone in areas where ranges overlap. *Genetta maculata* naturally crosses with *G. tigrina* in a restricted hybridisation zone within KwaZulu-Natal (Pringle 1977; Gaubert et al. 2005a).

Population

This species is relatively common, though its nocturnal and elusive habits mean that it may be infrequently recorded. For example, in southeastern Nigeria, sightings are rare, but Rusty-spotted Genets are commonly recorded in bushmeat markets and frequently trapped by local hunters (Angelici et al. 1999a,b).

Within the assessment region, we suspect that the species is widespread and fairly common, and is often recorded as being commensal with humans and adapting to human-modified landscapes. We suspect that there are > 10,000 mature individuals. It is widespread and common in Swaziland, both inside and outside of protected areas (Ara Monadjem pers. comm. 2016).

Current population trend: Unknown, but probably stable based on wide habitat tolerance and lack of significant threats.

Continuing decline in mature individuals: Unknown, but probably not.

Number of mature individuals in population: Unknown, but probably > 10,000.

Number of mature individuals in largest subpopulation: Unknown

Number of subpopulations: It is not currently possible to determine the extent or number of subpopulations.

Severely fragmented: No. Rusty-spotted Genets have a broad habitat tolerance and can exist in agricultural and rural landscapes.

Habitats and Ecology

The Rusty-spotted Genet is present in a variety of habitats, including rainforest, swampy areas, riverine vegetation, open and closed woodlands, moist forests, savannah–forest mosaics, thickets and even grassy savannah, but avoids extremely dry savannah and truly arid regions (Angelici & Gaubert 2013). It also occurs in cultivated areas (plantations), farmlands and suburban areas. An ecological study found that the presence of this species in Nigeria is positively correlated with "derived savannah", "oil palm plantations" and other altered habitats, but negatively correlated with various types of forests (Angelici & Luiselli 2005), suggesting that the species adapts well to human–modified habitats. Resting sites are often located in trees, but also in dense shrubs, disused burrows of other animals such as Aardvark (*Orycteropus afer*) or Springhare (*Pedetes* spp.), rock crevices and overhangs, and even inhabited or abandoned man-made structures (Angelici & Gaubert 2013; R. Roux et al. unpubl. data). Rusty-spotted Genets are both terrestrial (Photo 1) and arboreal (Photo 2) and can sometimes be seen taking shelter in trees or other elevated areas (Angelici & Gaubert 2013).

This species is mainly carnivorous, but will also eat vegetable matter such as fruits, seeds and berries (Angelici & Gaubert 2013). Mainly mammals and insects are caught, but centipedes and millipedes, spiders, scorpions, amphibians and reptiles (including lizards and snakes) as well as small birds and eggs are also hunted (Angelici & Luiselli 2005; Martinoli et al. 2006; Angelici & Gaubert 2013). These genets will catch mammals up to the size of a hare and even aquatic animals such as gastropods and fish (Angelici & Gaubert 2013). They will also scavenge on human leftovers. The Rusty-spotted Genet is an opportunistic feeder and will eat whatever is mostly available in its area during the season. In Tanzania, fruits were an important food source (Martinoli et al. 2006), probably due to their availability being higher than in South Africa. The percentage occurrence of a range of food items in the stomachs of 136 Rusty-spotted Genets in Zimbabwe (Smithers & Wilson 1979) and 30 in Botswana (Smithers 1971) was assessed. Results showed that, in Zimbabwe, 68% of the stomach contents consisted of murids, followed by 40% insects and 15% birds (Smithers & Wilson 1979). In Botswana, insects were the main food source comprising 90% of the diet followed by 47% murids, 27% arachnids and 17% fruits (Smithers 1971). Here only 7% birds occurred (Smithers 1971). Insects that are eaten are usually Coleoptera, Orthoptera and Isoptera (Angelici & Gaubert 2013). A first scat analysis study for the species in South Africa is currently being carried out on Telperion Nature Reserve, Mpumalanga, South Africa (J. Zemouche et al. unpubl. data).

Rusty-spotted Genets are mainly nocturnal and spend the day in their resting sites (Angelici & Gaubert 2013). They are more active during the first half of the night and often have a short resting bout halfway through their active period (R. Roux et al. unpubl. data). Activity usually starts with sunset and ends before sunrise (R. Roux et al. unpubl. data). Males are more active than females

Photo 2. Rusty-spotted Genet (*Genetta maculata*) resting on a tree branch (Len de Beer)

(R. Roux et al. unpubl. data), possibly due to higher metabolic requirements and/or different reproductive strategies. During winter nights in Telperion Nature Reserve, the Rusty-spotted Genet terminated its activity earlier than in summer due to the cold temperatures (R. Roux et al. unpubl. data). Predation risk may play an important role in the spatial ecology, as Rusty-spotted Genets select areas with enough vegetation cover and often in proximity of safe refuges while they are out hunting (R. Roux pers. obs. 2015–2016).

The Rusty-spotted Genet is solitary and territorial although home ranges can sometimes overlap (Carpenter 1970). In Kenya, the home ranges of five radio-tracked genets varied between 0.1 and 1.0 km^2 (Angelici & Gaubert 2013). In Telperion Nature Reserve, the home ranges of 15 individuals were found to be on average 2.7 km^2 (range 2.1–7.0 km^2) in size (R. Roux et al. unpubl. data; Photo 3). Carpenter (1970) reported that male home ranges are usually larger than that of females, but no difference or even the opposite tendency was observed in Telperion. It is not clear to what extent these genets defend their territories, but they do mark them with secretions from the perineal glands, urine and faeces (Angelici & Gaubert 2013). Rusty-spotted Genets share latrine sites with other individuals (Blomsterberg 2016) and possibly also with other species such as African Civets (*Civettictis civetta*) and several mongoose species (Engel 2000). They could use these latrine sites for olfactory communication although specific scent-marking behaviour was not observed by Blomsterberg (2016). The breeding peak is from October to December, but a second peak can occur between March and May (Angelici & Gaubert 2013). Two to five kittens are generally born (Skinner & Chimimba 2005). Males may produce grumbling and coughing calls when courting a female and meowing has been recorded during mating (Dücker 1965). Soft growls and hissing were observed when wild Rusty-spotted Genets were captured in Telperion Nature Reserve (R. Roux pers. obs. 2015–2016).

Photo 3. Researchers releasing a radio-collared Rusty-spotted Genet (*Genetta maculata*) to study its spatio-temporal behaviour in Telperion Nature Reserve, Mpumalanga (Emmanuel Do Linh San)

Ecosystem and cultural services: None have been described specifically. However, it is likely that, together with other small carnivores, this species plays a role in controlling rodent and arthropod populations, notably in agricultural areas. Rusty-spotted Genets, together with the two other genet species occurring in the assessment region, have the potential to become a symbol/indicator of urban wildlife and integration of development with natural landscapes.

Use and Trade

There are a few reports mentioning that this species can be utilised as bushmeat, especially in western Africa (Angelici et al. 1999b). In southern Africa, body parts may also be used for medicinal purposes, with pieces of genet skin used as stick-fight charms and parts of the body are used to treat eye ailments (Cunningham & Zondi 1991). Genet hides and tails are sometimes used in Zulu culture as traditional adornments. Such practices, however, are localised and limited, and thus should not have a negative impact on the population.

It is becoming increasingly popular to keep several genet species as pets, specifically in the USA. In southern Africa, it is not common, however, and since it is expected that such animals originate from captive bred populations and not from the wild, it should not influence wild population numbers excessively. The number and proportion of Rusty-spotted Genets kept as pets both globally and in the assessment region is unknown.

Threats

There are no major threats to the species. Rusty-spotted Genets have been recorded in the Endangered Wildlife Trust's road collision database (W. Collinson unpubl. data), but the extent of road mortality on this species within the assessment region is unknown. There appear to be hotspots where this species frequently falls victim to road traffic (A. Halijian pers. comm. 2015–2016), and this

Table `2. Use and trade summary for the Rusty-spotted Genet (*Genetta maculata*)

Category	Applicable?	Rationale	Proportion of total harvest	Trend
Subsistence use	Yes	Used as bushmeat, medicine or for their skins.	Limited	Unknown, probably stable
Commercial use	Yes	Selling of individuals as pets (or breeding stock).	Unknown	Increasing (mostly in the USA).
		Local commercial use in traditional medicine trade and trophy hunting.	Limited	Probably stable
Harvest from wild population	Yes	Localised and opportunistic harvest for the traditional medicine trade. Trophy hunting.	Limited	Traditional medicine probably stable; trophy hunting predicted to increase.
Harvest from ranched population	No	-	-	-
Harvest from captive population	Yes	Production of offspring to be sold as pets (or breeding stock).	Unknown	Increasing (mostly in the USA).

Table 3. Threats to the Rusty-spotted Genet (*Genetta maculata*) ranked in order of severity with corresponding evidence (based on IUCN threat categories, with regional context)

Rank	Threat description	Evidence in the scientific literature	Data quality	Scale of study	Current trend
1	*4.1 Roads & Railroads*: road collisions.	W. Collinson unpubl. data	Empirical	National	Increasing with road construction and habitat fragmentation.
		A. Halijian pers. comm. 2015–2016	Anecdotal	Local	
2	*5.1.1 Hunting & Collecting Terrestrial Animals:* hunting for food, fur and cultural purposes; collecting animals for the pet trade; trophy hunting.	Angelici et al. 1999b; Cunningham & Zondi 1991	Empirical	Local	Stable due to cultural use being localised.
		-	Anecdotal	-	Pet trade unknown.
		A. de Klerk pers. comm. 2016	Empirical	Local	Very low but increasing trophy hunting incidences.
3	*5.1.2* and *5.1.3 Persecution/Control:* persecution (hunting, trapping, and poisoning) either directly or as bycatch.	L.H. Swanepoel pers. comm. 2016	Anecdotal	Local	Probably limited and stable.
4	*8.1.2 Invasive Non-Native/Alien Species/Diseases:* predation by feral and domestic cats and dogs.	Angelici & Gaubert 2013; L.H. Swanepoel pers. comm. 2016	Anecdotal	Local	Increasing with increasing populations of feral/domestic cats and dogs.

might be related to both habitat features and higher local abundance. Rusty-spotted Genets have been recorded in bushmeat markets; are locally used for traditional medicine and cultural purposes; and are locally hunted for their trophy, notably in Limpopo (A. de Klerk pers. comm. 2016; see e.g. https://www.discountafricanhunts.com/hunts/honey-badger-civet-and-genet-hunt-in-south-africa.html). Since they do have a reputation as poultry thieves, farmers sometimes poison or trap them (L.H. Swanepoel pers. comm. 2016). Finally, they are occasionally killed by domestic cats and dogs in both peri-urban and rural areas (Angelici & Gaubert 2013; L.H. Swanepoel pers. comm. 2016).

Current habitat trend: Stable. This species is present in a wide range of habitats and can even adapt to human-modified habitats and thrive in peri-urban areas.

Conservation

This species is present in a large number of protected areas. Within the assessment region, no major and urgent conservation interventions are necessary. However, education should be used to raise the profile of this species and encourage farmers to live with rather than against genets. Marketing and awareness campaigns can also be used to position the presence of this species as a point of pride for urban and rural landowners, and conservationists should encourage better land management to facilitate genet conservation.

Recommendations for land managers and practitioners:

- To reduce collisions with vehicles, mitigation measures such as road fencing and improvement of habitat near road crossing structures (for example, underpasses) should be implemented whenever possible (Collinson et al. 2015).
- Due to the reported predation or killing of Rusty-spotted Genets by feral and domestic dogs and cats (Angelici & Gaubert 2013; L.H. Swanepoel pers. comm. 2016), it might be necessary to control the number of feral dogs and cats in both urban and rural areas, and encourage dog and cat owners to put collar-mounted bells, sonic bleepers or "pounce protectors" on their pets (Nelson et al. 2005; Calver et al. 2007).

Research priorities:

- Taxonomic status of *G. maculata* versus *G. tigrina*.
- Competition and hybridisation patterns with sympatric species of genets (*G. genetta* and *G. tigrina*).
- Population estimates, demographic parameters and possible barriers to dispersal across the species' distribution range.
- Home range and habitat use of Rusty-spotted Genets in a variety of landscapes (protected areas, agricultural areas and urban landscapes).
- Determine genetic health and diversity of both rural and urban populations.
- Testing of rabies in Rusty-spotted Genets and their potential role as vectors of the disease.
- Effect – if any – of commercial hunting on local populations.

A team of researchers from the University of Fort Hare, University of South Africa, University of the Witwatersrand and University of Pretoria is currently studying the ecology and behaviour of Rusty-spotted Genets in Telperion Nature Reserve (Mpumalanga). The project aims to describe the spatial behaviour, habitat use, activity patterns, diet and use of latrines by this largely unstudied species. Contact details of the research coordinator: Prof. Emmanuel Do Linh San, Department of Zoology and Entomology, University of Fort Hare, Alice, 5700, South Africa. Email: edolinhsan@ufh.ac.za. Website: https://www.ascaris.org.

Encouraged citizen actions:

- Report sightings of any genet species on virtual museum/social platforms (for example, iSpot and MammalMAP), especially outside protected areas, as well as to Emmanuel Do Linh San (emmanuel.dolinhsan@gmail.com). GPS locations and photographs would be of great assistance.

Table 4. Conservation interventions for the Rusty-spotted Genet (*Genetta maculata*) *species*) ranked in order of effectiveness with corresponding evidence (based on IUCN action categories, with regional context)

Rank	Intervention description	Evidence in the scientific literature	Data quality	Scale of evidence	Demonstrated impact	Current conservation projects
1	*2.1 Site/Area Management*: install road-crossing structures in key habitats at road collision hotspots.	Collinson et al. 2015	Anecdotal	-	-	-
2	*4.3 Awareness & Communications*: establish local campaigns in urban and rural landscapes to educate farmers, landowners and public about the key role played by genets (in general) in controlling rodent populations and potential vectors of zoonosis.	-	Anecdotal	-	-	-
3	*2.1 Site/Area Management*: the promotion of the "holistic" approach to the management of damage-causing animals.	-	Anecdotal	-	-	-
4	*2.2. Invasive/Problematic Species Control*: put mammal and bird friendly devices on domestic cats and dogs.	Nelson et al. 2005; Calver et al. 2007	Empirical	Local	No study focusing specifically on pets and genets yet. Reduction of up to 38% of small mammals preyed upon by domestic cats.	-
5	*2.2. Invasive/Problematic Species Control*: neuter or spay feral cats and dogs on game farms, ranches, conservancies, rural, peri-urban and urban areas.	-	Anecdotal	-	-	-
6	*4.3 Awareness & Communications*: establish a national campaign to educate the public about responsible domestic cat and dog ownership.	-	Anecdotal	-	-	-

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Data Sources and Quality

Table 5. Information and interpretation qualifiers for the Rusty-spotted Genet (*Genetta maculata*) assessment

Data sources	Field study (literature, unpublished), indirect information (literature, expert knowledge), museum records
Data quality (max)	Inferred
Data quality (min)	Suspected
Uncertainty resolution	Author consensus
Risk tolerance	Evidentiary

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Details of the methods used to make this assessment can be found in *Mammal Red List 2016: Introduction and Methodology.*